

Claims

- [c1] 1. A programming method of the multi-level flash memory, comprising:
shooting a programming voltage that is increasing upwards stepwise each time into a gate of the multi-level flash memory to change a state of the multi-level flash memory; and shooting an additional programming voltage into the multi-level flash memory after the last programming voltage is shot when a highest value of the multi-level is being programmed in the multi-level flash memory.
- [c2] 2. The method of claim 1, wherein the programming method can be used in a binary flash memory.
- [c3] 3. A programming method of the multi-level flash memory, comprising:
shooting a programming voltage that is increasing upward stepwise each time into a gate of the multi-level flash memory to change a state of the multi-level flash memory; and shooting an additional programming voltage into the multi-level flash memory after the last programming voltage is shot when a value of the multi-level is being programmed in the multi-level flash memory.
- [c4] 4. The method of claim 3, wherein the programming method can be used in a binary flash memory.
- [c5] 5. An erasing method of the multi-level flash memory, comprising: shooting an erasing voltage that is decreasing downwards stepwise each time into a gate of the multi-level flash memory to change a state of the multi-level flash memory; and shooting an additional erasing voltage into the multi-level flash memory after the last erasing voltage is shot when a value of the multi-level is being erased in the multi-level flash memory.